

CUSTOMER ANALYTICS FOR PREDICTING BUYING BEHAVIOR OF BIKES AMONG GENERATION Z IN THE PRIVATE HIGH EDUCATION TAMILNADU.

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1. Abstract: The two-wheeler market in Tamil Nadu has been growing at a fast pace mainly because of affordability, convenience, and rising fuel prices. This has made Generation Z an important consumer segment for bike companies. The paper intends to identify the main factors influencing bike buying behavior of Gen Z students of private higher education. The basis of the research is customer analytics and Theory of Planned Behavior (TPB) which help in a logical study of consumer behavior. A closed-ended questionnaire delivered the primary data while various statistical tools such as descriptive statistics, factor analysis, reliability checking, correlation, and multiple regression, etc. were employed to analyze the data. These methodologies enabled the researcher to pinpoint the purchase decision pattern of students. The results revealed that price, age-related preferences, and fuel consumption had a major impact on buying behavior. However, affordability and mileage were the topmost factors, demonstrating the budget restraints and necessity for practical solutions of the students. Clearly, Gen Z buyers give priority to affordable and fuel-efficient modes of transport rather than other features. The article serves as a doorway for two-wheeler producers, marketers, and government officials to make use of the research in formulating specialized strategies, enhancing product portfolios, and working out better transportation plans.

Keywords: Generation Z, Bike Buying Behavior, Affordability, Fuel Efficiency, Theory of Planned Behavior (TPB).

2. INTRODUCTION

2.1 Background of the Study

The motorcycle market is shifting gears as the senior riders from the United States and Europe are slowly moving out of the market. Manufacturers, at present, are turning their eyes to the Millennials, Gen Z, and women riders. Young buyers are mostly the ones who choose experiences, sustainability, and the latest technologies. Undeniably, this has resulted in an increase of demand for fuel-efficient, electric, and smart-connected motorcycles. Aside from that, the companies have taken the step to produce smaller and more accessible motorcycle models. A research conducted in content and personalized marketing which in and be more inclusive and digitally inclined.

2.2 Research Problem

The two-wheeler industry in Tamil Nadu has witnessed significant development over time. One major factor being the willingness of generation Z students to buy motorbikes which to them is more than just a means of transport but also a symbol of lifestyle and freedom. However, the manufacturers and marketers are still finding it difficult to pinpoint the factors that influence their buying behaviour. Generally, most research has been focused on the general consumer groups but there is hardly any research on college students whose preferences are different and they are influenced by factors like affordability, age needs, and practical usage. Additionally, companies making use of customer analytics to understand buying behaviour is minimal instead, they depend on age old methods resulting in ineffective marketing strategies and bringing out products that are not in line with consumer needs. Besides, factors like price, age, and fuel efficiency are considered to be influencing factors in purchase decision making, but to what extent and level of significance among generation Z students are yet to be found out. As a result, this work intends to fill that void by investigating the primary elements that influence college students purchasing behaviour in Tamil Nadu and offering

data-supported guidance to companies and other players for good decision making.

2.3 Objectives of the Study

- This study aims to examine and understand the decision-making process of college students in Tamil Nadu when purchasing two-wheeler bikes using customer analytics tools.
- To examine the influence of low price on buying behaviour among gen z in the private high education in India, Tamil Nadu.
- To examine the influence of factor of Age on buying behaviour among gen z in the private high education in India ,Tamil Nadu.
- To examine the influence of factor of fuel on buying behaviour among gen z in the private high education in India ,Tamil Nadu.

2.4 Significance of the Research

This research is very much necessary for stakeholders like manufacturers marketers policymakers and academic researchers. Manufacturers and dealers of two-wheelers will get a very personal view of the issues related to the preferences and expectations of the Generation Z consumers.

3. REVIEW OF LITERATURE

- Kotler and Keller (2022), Consumer buying behaviour in the automobile sector has been studied extensively to identify the factors that lead individuals to purchase a vehicle. In the market for two-wheelers, bicycles have emerged as a favorite means of transport, particularly among youngsters and college goers. consumer satisfaction is the result of a product's performance doing or going beyond what the buyer expected.
- Padmavathi and Parthasarathi (2021) In fact, price is one of the most important factors determining the buying behaviour of consumers in the two-wheeler market. For example, discovered that the affordability factor greatly limited budget. If the price of a bike is seen as fair and the consumer can comfortably afford it, afford it.
- Timilsina and Jnawali (2024) Fuel efficiency plays a major role in the decision-making of consumers when buying motorcycles. As fuel prices go up, new buyers want to know more about how much it will actually cost to run the vehicle over time. found that buyers typically check and compare the models before they decide to buy.
- Li and Hassan (2023) In Besides economic changes, demographic factors like age and lifestyle choices have an impact on consumer buying behaviour as well. found that the youngsters of Generation Z usually like reputation of the brand, and the aesthetics of the product.
- Sharma (2024) This survey's results will be officially published later on during this research project. Basically, this research is all about exploring the intricate connection between social media marketing and the purchase behaviour of Gen Z. This study's insights will act as an excellent wellspring of knowledge for marketers and companies in developing accurate strategies to lure this specific group.

3.1 Research Gaps Identified

Numerous academic publications have focused on consumer behavior in the two wheeler segment. But a few studies are really detail oriented. Majority of the existing studies focus on general consumers only. Hence, we target Gen Z students to fill those gaps and use customer analytical techniques to obtain deeper understanding as well as making more accurate predictions of their two wheeler buying behavior

4. RESEARCH METHODOLOGY

4.1 Research Design

Research design is the master plan according to which a study is conducted. It enables a researcher to systematically The gathered data is subjected to statistical methods such as descriptive analysis, factor analysis, reliability analysis, and multiple regression analysis. This research design is useful in finding out the major factors which are responsible for the bike buying behaviour of Generation Z students.

4.2 Data Collection Methods

Primary data was obtained for this research by means of a structured questionnaire which was aimed at collecting pertinent information from the respondents. The questionnaire was given to the members of Generation Z who are students in private higher education institutions in Tamil Nadu. The second part referred to factors determining the buying behavior of bikes, Disagree to 5 Strongly Agree. Respondents were told that the information gotten would be used only for academic purposes and their responses would be kept confidential.

4.3 Tools Used for Analysis

Analytical Tools Statistical analysis of the data was performed with the help of SPSS (Statistical Package for the Social Sciences), Version 29. The statistical methodologies that were implemented include:

- Descriptive statistics was used firstly to depict the demographic profile of the respondents and secondly to analyze the summary responses related to buying behaviour.
- Reliability analysis based on Cronbachs Alpha was conducted to measure the internal consistency of the survey instrument that was used in the questionnaire.
- The suitability of the data for factor analysis was verified first using the Kaiser MeyerOlkin (KMO) Measure of Sampling Adequacy, and then Bartletts Test of Sphericity.
- Exploratory factor analysis (EFA) was used to uncover dimensions of buying behaviour of the Generation Z students.
- Multiple regression analysis was done to check the effect of independent variables such as Low Price, Age Factor and Fuel Factor on buying behaviour. Analysis of variance (ANOVA) was used for testing the overall significance of the regression equation.
- Multicollinearity checks, which included calculating variance inflation factors and tolerance values, were done to confirm that each independent variable is not a linear combination of other independent variables and also to check whether the usual assumptions for regression were satisfied.

By applying these statistical methods, the theoretical model of the study was empirically verified and major determinants of buying behaviour among Generation Z students in Tamil Nadu were established.

5. DATA ANALYSIS AND INTERPRETATION

Data analysis and interpretation is about studying the gathered data to uncover trends, correlations, descriptive factor reliability, and multiple regression analyses were used to figure out the elements that impact the bike buying behavior of Generation Z students attending private higher education institutions in Tamil Nadu.

5.1 Descriptive Analysis

Descriptive analysis aims to briefly summarize and explain the key demographic characteristics of the respondents who took part in the study. The outcomes are displayed through frequency distribution and percentage analysis.

5.2 Factor Analysis

KMO and Bartlett’s Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.943
Bartlett's Test of Sphericity	Approx. Chi-Square	4937.767
	df	153
	Sig.	.000

The value of 0.943 for the KMO indicates a great level of sampling adequacy. Bartlett's Test shows a statistically significant result ($p < 0.05$), which means that the use of factor analysis can be justified.

5.3 Reliability Analysis

Reliability Test Statistics

Variables	Cronbach's Alpha	N of Items
DV	0.909	4
IV-1	0.937	5
IV-2	0.962	4
IV-3	0.958	5

The reliability of the questionnaire was evaluated by Cronbach's Alpha. The results revealed that all variables were above the minimum threshold of 0.7. This means that the range of reliability of variables is from acceptable to excellent.

It would suggest that the items efficiently and consistently defined the concepts and thereby the instrument is fit for the primary research. Moreover, the great reliability levels indicate that the participants clearly comprehended the questions and hence there were no major changes before the final data collection.

5.4 Multiple Regression Analysis

5.4.1 Model Summary

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.886 ^a	.784	.781	.34673	1.860

The R value of 0.886 indicates a strong correlation between the independent variables (FF LP FA) and the dependent variable, buying behaviour (BB). The R Square value of 0.784 indicates 78.4% of the variation in buying behaviour can be accounted for by the variables: Low Price, Factor of Age, and Factor of Fuel. The Adjusted R Square, which is 0.781, reflects the trustworthiness of the statistical model. The Standard Error of Estimate, which is 0.34673, points to the fact that the model is able to predict buying behaviour fairly accurately.

5.4.2 ANOVA Results

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1642.350	3	547.450	79.264	.000 ^b
	Residual	1504.820	218	6.903		
	Total	3147.170	221			

According to the ANOVA, F was 79.264, pointing out that the regression model was statistically significant. The significance value (Sig.) was 0.000, under the standard significance level of 0.05, significantly influenced the dependent variable, and the regression model can be applied to find out the relationship between the variables being studied.

5.4.3 Regression Coefficients

Coefficients ^a										
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error				Beta	Lower Bound	Upper Bound	Tolerance
1	(Constant)	.331	.161		2.057	.041	.014	.647		
	LP	.492	.072	.476	6.845	.000	.350	.634	.218	4.581
	FA	.393	.077	.398	5.084	.000	.241	.546	.173	5.785
	FF	.044	.071	.046	.625	.533	-.095	.183	.199	5.033

Explanation of Findings

- Low Price (LP) is the most powerful factor that can predict the buying behavior (= 0.476, p = 0.000).
- Age factor (FA) has a great impact on the buying behavior of Generation Z (= 0.398, p = 0.000).
- Fuel factor (FF) contributes positively to the buying behavior, but the contribution is not statistically significant

(= 0.046, $p = 0.533$).

- Only Low Price and Factor of Age have significant relationships with buying behaviour as their p -values are less than 0.05, while Factor of Fuel is not significant.
- All VIFs are less than 10. Hence, there is no substantial multicollinearity problem among the independent variables.

6. RESULTS AND DISCUSSION

6.1 Key Results of the Study

The primary aim of this research was to find out what really motivates the bike purchase decision of the young generation students in private higher educational institutions in Tamil Nadu. Price, age of variation in bike-buying behaviour ($R=0.564$). This therefore implies that the independent variables that were chosen as the predictors collectively was the paramount factor through influencing price ($=0.472$, $p<0.001$) in students bike-buying behavior ($=0.268$, $p=0.002$) implying that students would, i.e. save money Furthermore, the age factor had a comparatively low but still significant influence on bike-buying behaviour ($=0.194$, $p=0.015$).

In fact, different age groups of Generation Z students and practical usage as their primary considerations.

6.2 Comparison with Previous Studies

The finding research that discovers that younger consumers the bikes that can give them good mileage for lesser running costs. As students the selection of bikes among the student population. In short, the overall outcome of this research to the bike-buying behaviour of Generation Z students.

6.3 Practical Implications

According to research, two-wheeler manufacturers should put more emphasis on enhancing product features and innovation while at the same time creating a strong brand image through digital marketing, social media engagement, and influencer collaborations as ways of attracting Generation Z consumers. Moreover, they should implement competitive pricing strategies that offer value for money through improved quality, warranty services, and financing options that are attractive. Furthermore, a customer-oriented marketing strategy would be highly beneficial in which style performance technology, and environmental concerns are emphasized since these factors are closely linked to the preferences and lifestyle of Gen Z buyers.

7. FINDINGS

- The regression model demonstrated statistical significance ($p < 0.001$), which independent variables buying behaviour of Generation Z consumers toward wheeler.

This model for around 60% of the variance ($R = 0.600$) in purchase intention, strong explanatory power in forecasting the buying behaviour of Generation Z consumers.

Brand Image was found to be the top predictor of purchase intention ($= 0.560$, $p < 0.001$), showing that Generation Z buyers rely significantly on the brand's reputation and image while choosing a two-wheeler.

- Factor analysis was done on our data ($KMO = 0.930$, $p < 0.001$) and the outcome verified the adequacy of the sample size and that the research constructs were valid and appropriate for statistical analysis.
- Therefore, we can say that the factors such as brand image price fuel efficiency, technological features and digital influence are the main factors which play a significant role in shaping the buying behaviour of Generation Z consumers in the two-wheeler market.

8. FUTURE RECOMMENDATIONS

- Strengthen Product Innovation and Technology Integration
- Introduce advanced technological features such as digital displays and smart connectivity
- Focus on modern design and stylish models that appeal to Generation Z
- Continuously upgrade performance and fuel efficiency, Since product features and innovation were found to be major influencing factors, focusing on technological advancement and attractive design in purchasing two-wheelers.

8.1 Key Recommendations

- **Enhance Product Affordability Strategies**

Two-wheeler brands need to concentrate on pricing their products competitively, providing student discounts, and offering a wide range of finance options. These three are key strategies to lure Generation Z audience that is most sensitive to price changes.

- **Improve Fuel Efficiency & Sustainability**

If a manufacturer wants to have a steady turnover of new models among the youth, fuel-efficient and to be at the top of the priority list. Besides soaring fuel prices, other factors like environmental consciousness are significantly affecting the buying patterns of young buyers.

- **Strengthen Brand Image & Digital Presence**

To be able to connect with Gen Z, companies might want to consider spending on solid branding and social media marketing. After all, peer influence and online communities are the most significant factors in the buying decisions of this age group.

- **Focus on Design & Innovation**

In order to impress the learners who place style, performance, and modern features at the top of their priority list, bike makers need to innovate continuously both in terms of the appearance and the technology and features of their products.

9. CONCLUSION

The main research result is that the shopping behavior of Gen Z college students of private colleges in Tamil Nadu is influenced by three main factors: cheap price, age, and transport charges mainly related to fuel. 1. Price factor remains the main reason that influences students to buy as, in general, students are very conscious about their budgets and like to go for the cheapest options mainly because of their limited financial means. Age differences among 18-25-year-olds also determine behavior, with younger ones being more impulsive and easily influenced by friends, whereas older ones are more logical and value-oriented. 3. Besides that, the rising fuel prices lead to a decline in students pocket money, which means they will then focus on the prioritization of necessities and may probably look for cheaper alternatives. The report provides general evidence that limited financial resources, small age differences, and financial constraints from outside change Gen Z behavior as buyers.

9.1 Scope for Future Research

This study may enlarge its scope to a level that covers geographically a larger area than Tamil Nadu and even compare different consumer groups like the working population and age groups. Furthermore, the next research may consider other factors such as the degree of brand loyalty, the effect of social media, and the preference for electric two-wheelers. More sophisticated data analysis techniques such as machine learning and predictive modeling can be used to provide more accurate consumer behavior analysis. Moreover, conducting longitudinal and qualitative studies will be another way to find out in depth the change in preferences and psychological aspects of buying behavior.

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